HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
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Docket No.: 200208731-1
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Timothy C. Fischer et al.

Application No.: 10/679,725	Confirmation No.: 2881
Filed: October 6, 2003	Art Unit: 2115
For: CENTRAL PROCESSING UNIT WITH MULTIPLE CLOCK ZONES AND OPERATING METHODS	Examiner: D. Butler

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under 37 C.F.R. § 41.41(a), this Reply Brief is filed within two months of the Examiner's Answer. It is believed that no fees are due.

This brief contains items under the following headings as required by M.P.E.P. § 1208:

I. Status of Claims
II Grounds of Rejection to be Reviewed on Appeal
III. Argument

I. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 20 claims pending in application.

B. Current Status of Claims

1. Claims canceled: None
2. Claims withdrawn from consideration but not canceled: None
3. Claims pending: 1-20
4. Claims allowed: None
5. Claims objected as dependent from a rejected base claim: 4-8, 12-14, and 18-20.
6. Claims rejected: 1-3, 9-11, and 15-17.

C. Claims On Appeal

The claims on appeal are claims 1-3, 9-11, and 15-17.

Claims 1, 10, and 15 are rejected on the grounds of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 8, and 15 of U.S. Patent 7,076,679. Appellant has indicated it would file a terminal disclaimer to overcome this rejection should the double patenting rejection apply to the claims as allowed. The Appellee states on page six of the Examiner's Answer that the Appellant's offer to file a terminal disclaimer does not overcome the rejection. Appellant does not disagree, but merely intended to address the pending ground for rejection.

In response to the Appellee's statement, Appellant has moved the discussion of the double-patenting rejection to the Status of the Claims to show that this is not a matter for the Board's review. Appellant however believes that filing a Terminal Disclaimer is premature as only the independent claims are rejected on this basis.

II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claim 1, 10, and 15 are rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 8, and 15 of the U.S. Patent 7,076,679.

B. Whether claims 1, 2, 9, 15 and 16 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,047,248 to Georgiou et al. ("Georgiou").

C. Whether claim 10 is properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,047,248 to Georgiou et al. ("Georgiou").

III. ARGUMENT

Since 37 C.F.R. §41.41 does not specify a format for Reply Briefs, Appellant presents the arguments below in a format organized to counter the Response to Arguments section of the Examiner's Answer rather than to conform to the format for an Appeal Brief, wherein independently argued claims are presented under separate headings. The format of this Reply does not cause claims to be considered together or separately other than as presented in the Appeal Brief. It is believed that this eliminates repetition and is done for the convenience of the Board.

A. Obviousness Type Double Patenting

Appellant has moved its discussion of the double-patenting rejection to the Status of the Claims, as there is no issue requiring the Board's review.

B. Rejection of Claims 1, 2, 9, 10, 15 and 16 under 35 U.S.C. §103(a)

The Appellee states that the Appellant's statement of the law is "off-base" in view of the Supreme Courts decision in *KSR v. Teleflex*, 500 U.S. ___, 82 USPQ2d 1385 (2007), as the Supreme Court has ruled that the test for obviousness does not require a rigid application of the teaching/suggestion/motivation tests.

In KSR, The Supreme Court stated that the Graham v. John Deere Co. of Kansas City, 383 U.S. 1 (1966), factors still control an obviousness inquiry. Those factors are: 1) "the scope and content of the prior art"; 2) the "differences between the prior art and the claims"; 3) "the level of ordinary skill in the pertinent art"; and 4) objective evidence of nonobviousness. KSR, 127 S. Ct. at 1734 (quoting Graham, 383 U.S. at 17-18).

Appellant, respectfully asserts that the arguments set forth in the Appeal Brief are consistent with the *Graham* factors and the Appellee has not identified any specific statements or arguments made by the Appellant that are inconsistent with *KSR* or *Graham*.

Appellant would therefore respond to the arguments made by the Appellee as follows.

1. Georgiou does not sense power supply voltage within the clock zone.

Appellee states, in response to Appellant's arguments, that Appellant's specification and claim 9 describe the use of a temperature sensor, and that Appellant argues that a temperature sensor cannot be used to generate a power signal indicative of a power supply voltage. Answer, page 6. Appellee further states that the temperature sensor of Georgiou provides a measure of the power dissipated by a functional unit, and the power dissipated by a functional unit is directly related to the power supply voltage as disclosed by Georgiou, column 3, lines 31-40 and column 4, lines 44-46 and 59-61. Appellee therefore asserts that the power signal generated by the temperature sensor is indicative of a power supply voltage within the clock zone because of both its relationship to the voltage regulator 330/VDD 325 and its relationship to the voltage swing factor in the measured power dissipation. Answer, page 7.

Appellant respectfully asserts that Appellee is mischaracterizing Georgiou. Georgiou, in the portion of column 3 cited by the Appellee, states that the power dissipation of a CMOS chip is a function of the clock frequency, the voltage swing, the total capacitance and the switching factor according to the relationship shown on line 32. Georgiou then states that reducing the voltage swing reduces the power dissipated, but also slows the clock speed of the chip. Therefore, if the voltage swing is reduced to reduce power dissipation and therefore the temperature of the chip, the frequency must also be reduced to account for the slower switching speed of the chip at the reduced voltage. Georgiou's solution, therefore, to chip overheating is reducing the voltage and frequency simultaneously to ensure proper functionality of the chip and prevent overheating. Column 3, lines 18-24.

Contrary to the assertions of the Appellee, Georgiou explicitly states that the temperature sensor produces a signal indicative of the temperature of the functional unit, not its power supply voltage, as is required by claims 1 and 15. Georgiou compares the temperature signal against a threshold and reduces the voltage and frequency if the temperature exceeds that threshold. Nowhere does Georgiou describe a signal indicative of a power supply voltage as asserted by the Appellee.

Further, the portion of Georgiou cited by the Appellee, merely states that the power dissipation can be reduced by reducing the voltage swing. Georgiou does not state that the temperature signal is indicative of the power supply voltage as claimed by the Appellee. As stated by Georgiou the power dissipation, not temperature, is a factor of multiple variables, and changing those variables can alter the power dissipation of the device. The temperature, while a function of the power dissipation, is also determined by the heat dissipation of the device which in additional to being related to the power dissipated, is also related to ambient air temperature, air flow over the device and the efficiency of the heat sinks. Georgiou never claims that power supply voltage can be determined by temperature as asserted by the Appellee.

2. Georgiou does not describe each clock zone including a clock generator and a controller.

Appellant has argued that Georgiou does not describe multiple clock zones, each clock zone including a clock generator and controller. Appellee correctly states that Georgiou describes that the decoder 130 controls the clock selector 430 of each zone independently. Answer, page 9. Appellee then states that because the clock selector includes circuitry associated with a functional unit that this meets the limitation that requires each clock zone include a controller controlling the operating frequency of the clock generator. Appellant respectfully disagrees with the Appellee's contention.

Claims 1 and 15 explicitly require a CPU with multiple clock zones and in each clock zone there be a controller controlling the operating frequency of the clock generator (emphasis added). The Appellee's argument of functional equivalence is contrary to the express language of claims 1 and 15.

3. There is no motivation to modify Georgiou as proposed.

Appellant has argued that there is no motivation to modify Georgiou to include a controller responsive to frequency adjustments from other clock zones. Appellee in the Answer states that Georgiou describes cooperatively modulating the clock frequency sufficiently to maintain system synchronization. Answer, page 10. However, the synchronization cited by the Appellee in Georgiou is the synchronization between supply voltage and frequency. Column 3, lines 18-24. As stated, reducing the supply voltage to reduce power dissipation alters the circuit timing. Therefore, Georgiou has determined "voltage-frequency pairs" of supply voltages and corresponding frequencies that maintain system synchronization. Column 4, lines 44-51.

Nowhere does Georgiou describe any mechanism for implementing a controller that is responsive to frequency adjustment communications from other clock zones. Nor do the portions of Georgiou cited by the Appellee support the assertion of such cooperation between zones.

The Appellee supports the proposed modification by stating that such interzone communications could be required and that such communications could including reporting any changes in clock zone frequency to other clock zones. As described above, Georgiou describes only one clock selector 430. As there is only one clock selector there is no need for interzone communications as asserted by the Appellee, and therefore, the modification of Georgiou proposed by the Appellee requires the complete redesign of the device of Georgiou. As a result, the modification proposed by the Appellee is not one of "a finite number of identified predicable solutions" as asserted by the Appellee and required by *KSR*.

C. Rejection of Claim 10 under 35 U.S.C. §103(a)

Other than as is set forth above the Appellee does not address the arguments with regard to claim 10.

CONCLUSION

In view of the above, Appellant respectfully asserts that each of claims 1-3, 9-11 and 15-17 are allowable over the rejections of record.

I hereby certify that this document is being transmitted to the Patent and Trademark Office via electronic filing.

Date of Transmission: December 4, 2007

Signature: Jan Cleveland
(Jan Cleveland)

Respectfully submitted,

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